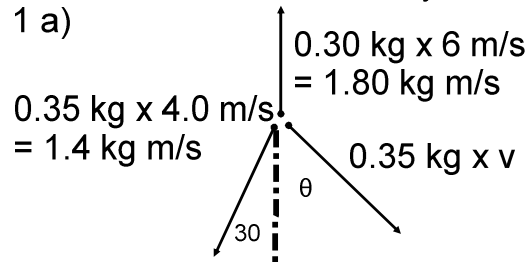
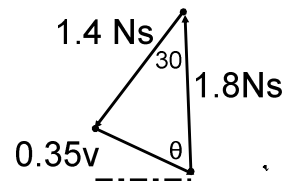


Momentum Quiz Answer Key

1 a)



b)



c)

$$p_f^2 = 1.4^2 + 1.8^2 - 2(1.4)(1.8)\cos 30$$

$$p_f^2 = 0.92$$

$$v = 0.92/0.35 = 2.6 \text{ m/s}$$

$$\sin 30 / (0.35 \times 3.5) = \sin \theta / 1.4$$

$$\theta = 41 \text{ degrees SofE}$$

q2 a)

$$600\text{kg} \times 10\text{m/s} = 6000 \text{ Ns}$$

$$900 \text{ kg} \times 15 \text{ m/s} = 13500 \text{ Ns}$$

$$p_f^2 = 13500^2 + 6000^2$$

$$p_f = 14773 \text{ Ns}$$

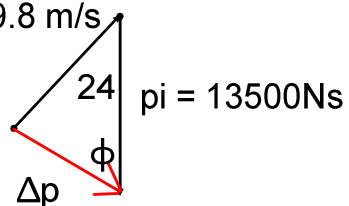
$$v_f = p_f / 1600\text{kg} = 9.8 \text{ m/s}$$

$$\tan \theta = 13500 / 6000$$

$$\theta = 66 \text{ degrees NofE}$$

$$b) \Delta p = p_f - p_i$$

$$p_f = 900\text{kg} \times 9.8 \text{ m/s} = 7978 \text{ Ns}$$



$$\Delta p^2 = 7978^2 + 13500^2 - 2(7978)(13500)\cos 24$$

$$\Delta p = 6479 \text{ Ns or kgm/s}$$

$$\sin \phi / 7978 = \sin 24 / 6479$$

$$\phi = 56 \text{ degrees SofE}$$